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PB-279 680

Distribution of Phytoplankton in New Jersey Lakes

Environmental Monitoring and Support Lab, Las Vegas, Nev

Jan 78

PB 279 680

EPA-600/3-78-014
January 1978

Ecological Research Series

DISTRIBUTION OF PHYTOPLANKTON IN NEW JERSEY LAKES

Environmental Monitoring and Support Laboratory
Office of Research and Development
U.S. Environmental Protection Agency
Las Vegas, Nevada 89114

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TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA-600/3-78-014	2.
3. RECIPIENT'S ACCESSION NO. PB279680	
4. TITLE AND SUBTITLE: DISTRIBUTION OF PHYTOPLANKTON IN NEW JERSEY LAKES	5. REPORT DATE: January 1978
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S): L.R. Williams, W.D. Taylor, F.A. Hiatt, S.C. Hern, J.W. Hilgert, V.W. Lambou, F.A. Morris, M.K. Morris	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Las Vegas, NV 89114	10. PROGRAM ELEMENT NO. 1BA608
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS: U.S. Environmental Protection Agency-Las Vegas, NV, Office of Research and Development, Environmental Monitoring and Support Laboratory, Las Vegas, NV 89114	13. TYPE OF REPORT AND PERIOD COVERED: 03-07-73 to 11-14-73
	14. SPONSORING AGENCY CODE: EPA/600/07

15. SUPPLEMENTARY NOTES
Previously released in limited distribution as No. 686 in the Working Paper Series for the National Eutrophication Survey.

16. ABSTRACT

This is a data report presenting the species and abundance of phytoplankton in the 13 lakes sampled by the National Eutrophication Survey in the State of New Jersey. Results from the calculation of several water quality indices are also included (Nygaard's Trophic State Indes, Palmer's Organic Pollution Index, and species diversity and abundance indices).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
*aquatic microbiology lakes *phytoplankton water quality	New Jersey lake eutrophication Nygaard's trophic indices Palmer's organic pollution indices Species diversity and abundance indices	06 C, M 08 H 13 B

18. DISTRIBUTION STATEMENT: RELEASE TO PUBLIC	19. SECURITY CLASS (This Report): UNCLASSIFIED	21. NO. OF PAGES: 67
	20. SECURITY CLASS (This page): UNCLASSIFIED	22. PRICE: PCA04 / MF A01

Form 2220-1 (9-73)

EPA-600/3-78-014
January 1978

DISTRIBUTION OF PHYTOPLANKTON IN NEW JERSEY LAKES

by

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FOREWORD

Protection of the environment requires effective regulatory actions which are based on sound technical and scientific information. This information must include the quantitative description and linking of pollutant sources, transport mechanisms, interactions, and resulting effects on man and his environment. Because of the complexities involved, assessment of specific pollutants in the environment requires a total systems approach which transcends the media of air, water, and land. The Environmental Monitoring and Support Laboratory-Las Vegas contributes to the formation and enhancement of a sound integrated monitoring data base through multidisciplinary, multimedia programs designed to:

- develop and optimize systems and strategies for monitoring pollutants and their impact on the environment
- demonstrate new monitoring systems and technologies by applying them to fulfill special monitoring needs of the Agency's operating programs

This report presents the species and abundance of phytoplankton in the 13 lakes sampled by the National Eutrophication Survey in the State of New Jersey, along with results from the calculation of several commonly used biological indices of water quality and community structure. These data can be used to biologically characterize the study lakes, and as baseline data for future investigations. This report was written for use by Federal, State, and local governmental agencies concerned with water quality analysis, monitoring, and/or regulation. Private industry and individuals similarly involved with the biological aspects of water quality will find the document useful. For further information contact the Water and Land Quality Branch, Monitoring Operations Division.

George B. Morgan
Director
Environmental Monitoring and Support Laboratory
Las Vegas

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INTRODUCTION

The collection and analysis of phytoplankton data were included in the National Eutrophication Survey in an effort to determine relationships between algal characteristics and trophic status of individual lakes.

During spring, summer, and fall of 1973, the Survey sampled 250 lakes in 17 States. Over 700 algal species and varieties were identified and enumerated from the 743 water samples examined.

This report presents the species and abundance of phytoplankton in the 13 lakes sampled in the State of New Jersey (Table 1). The Nygaard's Trophic State (Nygaard 1949), Palmer's Organic Pollution (Palmer 1969), and species diversity and abundance indices are also included.

TABLE 1. LAKES SAMPLED IN THE STATE OF NEW JERSEY

STORET #	LAKE NAME	COUNTY
3402	Budd Lake	Morris
3403	Greenwood Lake	Passaic (Orange in N.Y.)
3406	Oradell Reservoir	Bergen
3409	Pinecliff Lake	Passaic
3410	Pompton Lake	Passaic
3412	Duhernal Lake	Middlesex
3413	Farrington Lake	Middlesex
3415	Lake Hopatcong	Morris, Sussex
3417	Lake Musconetcong	Morris, Sussex
3419	Paulinskill Lake	Sussex
3420	Spruce Run Reservoir	Hunterdon
3422	Union Lake	Cumberland
3423	Wanaque Reservoir	Passaic

MATERIALS AND METHODS

LAKE AND SITE SELECTION

Lakes and reservoirs included in the Survey were selected through discussions with State water pollution agency personnel and U.S. Environmental Protection Agency Regional Offices (U.S. Environmental Protection Agency 1975). Screening and selection strongly emphasized lakes with actual or potential accelerated eutrophication problems. As a result, the selection was limited to lakes:

(1) impacted by one or more municipal sewage treatment plant outfalls either directly into the lake or by discharge to an inlet tributary within approximately 40 kilometers of the lake;

(2) 40 hectares or larger in size; and

(3) with a mean hydraulic retention time of at least 30 days.

Specific selection criteria were waived for some lakes of particular State interest.

Sampling sites for a lake were selected based on available information on lake morphometry, potential major sources of nutrient input, and on-site judgment of the field limnologist (U.S. Environmental Protection Agency 1975). Primary sampling sites were chosen to reflect the deepest portion of each major basin in a test lake. Where many basins were present, selection was guided by nutrient source information on hand. At each sampling site, a depth-integrated phytoplankton sample was taken. Depth-integrated samples were uniform mixtures of water from the surface to a depth of 15 feet (4.6 meters) or from the surface to the lower limit of the photic zone representing 1 percent of the incident light, whichever was greater. If the depth at the sampling site was less than 15 feet (4.6 meters), the sample was taken from just off the bottom to the surface. Normally, a lake was sampled three times in 1 year, providing information on spring, summer, and fall conditions.

SAMPLE PREPARATION

Four milliliters (ml) of Acid-Lugol's solution (Prescott 1970) were added to each 130-ml sample from each site at the time of collection for preservation. The samples were shipped to the Environmental Monitoring and Support Laboratory, Las Vegas, Nevada, where equal volumes from each site were mixed to form two 130-ml composite samples for a given lake. One composite sample was put into storage and the other was used for the examination.

Prior to examination, the composite samples were concentrated by the settling method. Solids were allowed to settle for at least 24 hours prior to siphoning off the supernate. The volume of the removed supernate and the volume of the remaining concentrate were measured and concentrations determined. A small (8 ml) library subsample of the concentrate was then taken. The remaining concentrate was gently agitated to resuspend the plankton and poured into a capped, graduated test tube. If a preliminary examination of a sample indicated the need for a more concentrated sample, the contents of the test tube were further concentrated by repeating the settling method. Final concentrations varied from 15 to 40 times the original.

Permanent slides were prepared from concentrated samples after analysis was complete. A drop of superconcentrate from the bottom of the test tube was placed in a ring of clear Karo®Corn Syrup with phenol (a few crystals of phenol were added to each 100 ml of syrup) on a glass slide, thoroughly mixed, and topped with a coverglass. After the syrup at the edges of the coverglass had hardened, the excess was scraped away and the mount was sealed with clear fingernail polish. Permanent diatom slides were prepared by drying sample material on a coverglass, heating in a muffle furnace at 400° C for 45 minutes, and mounting in Hyrax®. Finally, the mounts were sealed with clear fingernail polish.

Backup samples, library samples, permanent sample slides, and Hyrax®mounted diatom slides are being stored and maintained at the U.S. Environmental Monitoring and Support Laboratory-Las Vegas.

EXAMINATION

The phytoplankton samples were examined with the aid of binocular compound microscopes. A preliminary examination was performed to precisely identify and list all forms encountered. The length of this examination varied depending on the complexity of the sample. An attempt was made to find and identify all of the forms present in each sample. Often forms were observed which could not be identified to species or to genus. Abbreviated descriptions were used to keep a record of these forms (e.g., lunate cell, blue-green filament, Navicula #1). Diatom slides were examined using a standard light microscope. If greater resolution was essential to accurately identify the diatoms, a phase-contrast microscope was used.

After the species list was compiled, phytoplankton were enumerated using a Neubauer Counting Chamber with a 40X objective lens and a 10X ocular lens. All forms within each field were counted. The count was continued until a minimum of 100 fields had been viewed, or until the dominant form had been observed a minimum of 100 times.

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QUALITY CONTROL

Internal quality control checks on species identifications and counts were performed on a regular basis between project phycologists at the rate of 7 percent. Although an individual had primary responsibility for analyzing a sample, taxonomic problems were discussed among the phycologists.

Additional quality control checks were performed on the Survey samples by Dr. G. W. Prescott of the University of Montana at the rate of 5 percent. Quality control checks were made on 75 percent of these samples to verify species identifications while checks were made on the remaining 25 percent of the samples to verify genus counts. Presently, the agreement between quality control checks for species identification and genus enumerations is satisfactory.

RESULTS

The Appendix summarizes all of the phytoplankton data collected from the State by the Survey. It is organized by lake, including an alphabetical phytoplankton species list with concentrations for individual species given by sampling date. Results from the application of several indices are presented (Nygaard's Trophic State, Palmer's Organic Pollution, and species diversity and abundance). Each lake has been assigned a four digit STORET number. [STORET (STOrage and RETrieval) is the U.S. Environmental Protection Agency's computer system which processes and maintains water quality data.] The first two digits of the STORET number identify the State; the last two digits identify the lake.

NYGAARD'S TROPHIC STATE INDICES

Five indices devised by Nygaard (1949) were proposed under the assumption that certain algal groups are indicative of levels of nutrient enrichment. These indices were calculated in order to aid in determining the surveyed lakes' trophic status. As a general rule, Cyanophyta, Euglenophyta, centric diatoms, and members of the Chlorococcales are found in waters that are eutrophic (rich in nutrients), while desmids and many pennate diatoms generally cannot tolerate high nutrient levels and so are found in oligotrophic waters (poor in nutrients).

In applying the indices to the Survey data, the number of taxa in each major group was determined from the species list for each sample. The ratios of these groups give numerical values which can be used as a biological index of water richness. The five indices and the ranges of values established for Danish lakes by Nygaard for each trophic state are presented in Table 2. The appropriate symbol, (E) eutrophic and (O) oligotrophic, follows each calculated value in the tables in the Appendix. A question mark (?) was entered in these tables when the calculated value was within the range of both classifications.

PALMER'S ORGANIC POLLUTION INDICES

Palmer (1969) analyzed reports from 165 authors and developed algal pollution indices for use in rating water samples with high organic pollution. Two lists of organic pollution-tolerant forms were prepared, one containing 20 genera, the other, 20 species (Tables 3 and 4). Each form was assigned a pollution index number ranging from 1 for moderately tolerant forms to 6 for extremely tolerant forms. Palmer based the index numbers on occurrence records and/or where emphasized by the authors as being especially tolerant of organic pollution.

TABLE 2. NYGAARD'S TROPHIC STATE INDICES ADAPTED FROM HUTCHINSON (1967)

Index	Calculation	Oligotrophic	Eutrophic
Myxophycean	$\frac{\text{Myxophyceae}}{\text{Desmideae}}$	0.0-0.4	0.1-3.0
Chlorophycean	$\frac{\text{Chlorococcales}}{\text{Desmideae}}$	0.0-0.7	0.2-9.0
Diatom	$\frac{\text{Centric Diatoms}}{\text{Pennate Diatoms}}$	0.0-0.3	0.0-1.75
Euglenophyte	$\frac{\text{Euglenophyta}}{\text{Myxophyceae + Chlorococcales}}$	0.0-0.3	0.0-1.0
Compound	$\frac{\text{Myxophyceae + Chlorococcales + Centric Diatoms + Euglenophyta}}{\text{Desmideae}}$	0.0-1.0	1.2-25

TABLE 3. ALGAL GENUS POLLUTION INDEX (Palmer 1969)

Genus	Pollution Index
Anacystis	1
Ankistrodesmus	2
Chlamydomonas	4
Chlorella	3
Closterium	1
Cyclotella	1
Euglena	5
Gomphonema	1
Lepocinclis	1
Melosira	1
Micractinium	1
Navicula	3
Nitzschia	3
Oscillatoria	5
Pandorina	1
Phacus	2
Phormidium	1
Scenedesmus	4
Stigeoclonium	2
Synedra	2

TABLE 4. ALGAL SPECIES POLLUTION INDEX (Palmer 1969)

Species	Pollution Index
Ankistrodesmus falcatus	3
Arthrospira jenneri	2
Chlorella vulgaris	2
Cyclotella meneghiniana	2
Euglena gracilis	1
Euglena viridis	6
Gomphonema parvulum	1
Melosira varians	2
Navicula cryptocephala	1
Nitzschia acicularis	1
Nitzschia palea	5
Oscillatoria chlorina	2
Oscillatoria limosa	4
Oscillatoria princeps	1
Oscillatoria putrida	1
Oscillatoria tenuis	4
Pandorina morum	3
Scenedesmus quadricauda	4
Stigeoclonium tenue	3
Syndra ulna	3

In analyzing a water sample, any of the 20 genera or species of algae present in concentrations of 50 per milliliter or more are recorded. The pollution index numbers of the algae present are totaled, providing a genus score and a species score. Palmer determined that a score of 20 or more for either index can be taken as evidence of high organic pollution, while a score of 15 to 19 is taken as probable evidence of high organic pollution. Lower figures suggest that the organic pollution of the sample is not high, that the sample is not representative, or that some substance or factor interfering with algal persistence is present and active.

SPECIES DIVERSITY AND ABUNDANCE INDICES

"Information content" of biological samples is being used commonly by biologists as a measure of diversity. Diversity in this connection means the degree of uncertainty attached to the specific identity of any randomly selected individual. The greater the number of taxa and the more equal their proportions, the greater the uncertainty, and hence, the diversity (Pielou 1966). There are several methods of measuring diversity, e.g., the formulas given by Brillouin (1962) and Shannon and Weaver (1963). The method which is appropriate depends on the type of biological sample on hand.

Pielou (1966) classifies the types of biological samples and gives the measure of diversity appropriate for each type. The Survey phytoplankton samples are what she classifies as larger samples (collections in Pielou's terminology) from which random subsamples can be drawn. According to Pielou, the average diversity per individual for these types of samples can be estimated from the Shannon-Wiener formula (Shannon and Weaver 1963):

$$H = -\sum_{i=1}^{S} P_i \log_x P_i$$

where P is the proportion of the ith taxon in the sample, which is calculated from n_i/N; n_i is the number of individuals per milliliter of the ith taxon; N is the total number of individuals per ml; and S is the total number of taxa.

However, Basharin (1959) and Pielou (1966) have pointed out that H calculated from the subsample is a biased estimator of the sample H, and if this bias is to be accounted for, we must know the total number of taxa present in the sample since the magnitude of this bias depends on it.

Pielou (1966) suggests that if the number of taxa in the subsample falls only slightly short of the number in the larger sample, no appreciable error will result in considering S, estimated from the subsample, as being equal to the sample value. Even though considerable effort was made to find and identify all taxa, the Survey samples undoubtedly contain a fair number of rare phytoplankton taxa which were not encountered.

In the Shannon-Wiener formula, an increase in the number of taxa and/or an increase in the evenness of the distribution of individuals among taxa will increase the average diversity per individual from its minimal value of zero. Sager and Hasler (1969) found that the richness of taxa was of minor importance in determination of average diversity per individual for phytoplankton and they concluded that phytoplankton taxa in excess of the 10 to 15 most abundant ones have little effect on H, which was verified by our own calculations. Our counts are in number per milliliter and since logarithms to the base 2 were used in our calculations, H is expressed in units of bits per individual. When individuals of a taxon were so rare that they were not counted, a value of 1/130 per milliliter or 0.008 per milliliter was used in the calculations since at least one individual of the taxon must have been present in the collection.

A Survey sample for a given lake represents a composite of all phytoplankton collected at different sampling sites on a lake during a given sampling period. Since the number of samples (M) making up a composite is a function of both the complexity of the lake sampled and its size, it should affect the richness-of-taxa component of the diversity of our phytoplankton collections. The maximum diversity (MaxH) (i.e., when the individuals are distributed among the taxa as evenly as possible) was estimated from $\log_2 S$, the total diversity (D) was calculated from HN, and the evenness component of diversity (J) was estimated from H/MaxH (Pielou 1966). Also given in the Appendix are L (the mean number of individuals per taxa per milliliter) and K (the number of individuals per milliliter of the most abundant taxon in the sample).

Zand (1976) suggests that diversity indices be expressed in units of "sits", i.e., in logarithms to base S (where S is the total number of taxa in the sample) instead of in "bits", i.e., in logarithms to base 2. Zand points out that the diversity index in sits per individual is a normalized number ranging from 1 for the most evenly distributed samples to 0 for the least evenly distributed samples. Also, it can be used to compare different samples, independent of the number of taxa in each. The diversity in bits per individual should not be used in direct comparisons involving various samples which have different numbers of species. Since MaxH equals log S, the expression in sits is equal to $\log_S S$, or 1. Therefore diversity in sits per individual is numerically equivalent to J, the evenness component for the Shannon-Wiener formula.

SPECIES OCCURRENCE AND ABUNDANCE

The alphabetic phytoplankton species list for each lake, presented in the Appendix, gives the concentrations of individual species by sampling date. Concentrations are in cells, colonies, or filaments (CEL, COL, FIL) per milliliter. An "X" after a species name indicates the presence of the species on that date in such a low concentration that it did not show up in the count. A blank space indicates that the organism was not found in the sample collected on that date. Column S is used to designate the examiner's subjective opinion of the five dominant taxa in a sample, based upon relative size and concentration of the organism. The percent column (%C) presents, by abundance, the percentage composition of each taxon.

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APPENDIX. SUMMARY OF PHYTOPLANKTON DATA

This appendix was generated by computer. Because it was only possible to use upper case letters in the printout, all scientific names are printed in upper case and are not italicized.

The alphabetic phytoplankton lists include taxa without species names (e.g., EUNOTIA, EUNOTIA #1, FLAGELLATE, FLAGELLATES, MICROSYSTIS INCERTA ?, CHLOROPHYTAN COCCOID CELLED COLONY). When species determinations were not possible, symbols or descriptive phrases were used to separate taxa for enumeration purposes. Each name on a list, however, represents a unique species different from any other name on the same list, unless otherwise noted, for counting purposes.

Numbers were used to separate unidentified species of the same genus. A generic name listed alone is also a unique species. A question mark (?) is placed immediately after the portion of a name which was assigned with uncertainty. Numbered, questioned, or otherwise designated taxa were established on a lake-by-lake basis; therefore NAVICULA #2 from lake A cannot be compared to NAVICULA #2 from lake B. Pluralized categories (e.g., FLAGELLATES, CENTRIC DIATOMS, SPP.) were used for counting purposes when taxa could not be properly differentiated on the counting chamber.

LAKE NAME: BUDD LAKE
STORET NUMBER: 3402

NYGAARD TROPHIC STATE INDICES

DATE	07 23 73	10 01 73
MYXOPHYCEAN	0.87 E	1.20 E
CHLOROPHYCEAN	2.12 E	3.60 E
EUGLENOPHYTE	0.12 ?	0/24 ?
DIATOM	0.75 E	1.50 E
COMPOUND	4.12 E	5.40 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	07 23 73	10 01 73
GENUS	08	15
SPECIES	00	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		07 23 73	10 01 73
AVERAGE DIVERSITY	H	3.80	3.64
NUMBER OF TAXA	S	57.00	38.00
NUMBER OF SAMPLES COMPOSITED	M	1.00	1.00
MAXIMUM DIVERSITY	MAXH	5.83	5.25
TOTAL DIVERSITY	D	26486.00	52299.52
TOTAL NUMBER OF INDIVIDUALS/ML	N	6970.00	14368.00
EVENESS COMPONENT	J	0.65	0.69
MEAN NUMBER OF INDIVIDUALS/TAXA	L	122.28	378.11
NUMBER/ML OF MOST ABUNDANT TAXON	K	1750.00	3404.00

LAKE NAME: BUDD LAKE
STORET NUMBER: 3402

CONTINUED

TAXA	FORM	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
ANABAENA	FIL		0.7	49	5	3.0	435
ANKISTRODESMUS	CEL					0.5	79
APHANIZOMENON ?	FIL			X		2.8	396
ASTERIONELLA	CEL		0.3	24			
ASTERIONELLA FORMOSA	CEL			X			
CERATIUM CYSTS	CEL						X
CERATIUM HIRUNDINELLA	CEL		0.3	24			X
CHROOCOCCUS	COL			X			
CLOSTERIUM	CEL		1.0	73			
CLOSTERIUM #1	CEL			X		1.1	158
CLOSTERIUM #2	CEL						X
COCCONEIS	CEL			X			
COELASTRUM RETICULATUM	COL						X
COELASTRUM SPHAERICUM	COL					0.5	79
COSMARIUM #1	CEL		0.7	49		1.4	198
COSMARIUM #2	CEL		0.7	49			
COSMARIUM #3	CEL			X			
CRUCIGENIA APICULATA	COL			X			
CYCLOTELLA	CEL		4.5	316			
DICTYOSPHAERIUM PULCHELLUM	COL			X			
DINOBRYON BAVARICUM	CEL			X			
DINOFLAGELLATE	CEL		1.0	73			
EUGLENA	CEL			X			
EUNOTIA NAEGELII	CEL			X			
FLAGELLATE	CEL					1.4	198
FLAGELLATE #1	CEL	3	25.1	1750			
FLAGELLATES	CEL	5	12.2	850			
FRAGILARIA CROTONENSIS	CEL		2.4	170		3.0	435
FRANCEIA	CEL					0.3	40
GOLENKINIA	CEL		0.3	24		0.5	79
MALLOMONAS	CEL		2.8	194			
MELOSIRA #2	CEL	2	9.4	656		9.1	1306

LAKE NAME: BUDD LAKE
STORET NUMBER: 3402

CONTINUED

TAXA	FORM	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
MELOSIRA DISTANS	CEL		2.8	194			
MELOSIRA GRANULATA	CEL		2.8	194		0.3	40
MERISMOPEDIA TENUISSIMA	COL		1.7	121			
MICROCYSTIS AERUGINOSA	COL			X	1	14.0	2018
MICROCYSTIS INCERTA	COL	4	14.3	996		2.5	356
MOUGEOTIA	FIL				4	17.6	2533
NAVICULA MINUSCULA ?	CEL			X			
OOCYSTIS	CEL			X			
OPHIOCYTIUM	CEL		1.0	73			
OSCILLATORIA	FIL				3	23.7	3404
PANDORINA MORUM	COL		0.3	24			
PEDIASTRUM BORYANUM	COL		0.7	49		2.5	356
PEDIASTRUM DUPLEX V. CLATHRATUM	COL		0.3	24		0.3	40
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL						X
PEDIASTRUM TETRAS V. TETRAODON	COL			X		0.3	40
PENNATE DIATOM	CEL		0.7	49			
PHACUS PYRUM	CEL		0.3	24			
PHACUS TORTUS	CEL		0.3	24			
PHORMIDIUM MUCICOLA	COL					5.2	752
RAPHIDIOPSIS ?	FIL		0.3	24			
RHIZOSOLENIA	CEL			X			
SCENEDESMUS	COL		0.3	24			
SCENEDESMUS #1	COL		0.3	24			
SCENEDESMUS ABUNDANS	COL		0.3	24		1.6	237
SCENEDESMUS BIJUGA	COL			X		0.3	40
SCENEDESMUS DIMORPHUS	COL						X
SCENEDESMUS OPOLIENSIS	COL					2.2	317
SCENEDESMUS QUADRICAUDA	COL					0.8	119
SCHROEDERIA SETIGERA	CEL		1.0	73			

LAKE NAME: BUDD LAKE
STORET NUMBER: 3402

CONTINUED

TAXA	FORM	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
STAURASTRUM	CEL		0.3	24			
STAURASTRUM #1	CEL					1.1	158
STAURASTRUM #2	CEL		0.3	24			
STAURASTRUM #3	CEL			X			
STAURASTRUM APICULATUM	CEL					0.3	40
STEPHANODISCUS ASTRAEA	CEL	1	7.7	535	2	3.0	435
SYNEDRA	CEL					0.3	40
TABELLARIA FENESTRATA	CEL			X			
TETRAEDRON CAUDATUM							
V. ?	CEL		0.3	24			
TETRAEDRON HASTATUM	CEL						X
TETRAEDRON LIMNETICUM	CEL						X
TETRAEDRON MINIMUM							
V. SCROBICULATUM	CEL		0.7	49		0.3	40
TETRAEDRON MUTICUM	CEL		0.3	24			
TETRAEDRON TRIGONUM	CEL						X
TETRASTRUM HETERACANTHUM	COL		0.3	24			
TETRASTRUM STAUROGENIAEFORME	COL		0.3	24			
TOTAL				6970			14368

LAKE NAME: GREENWOOD LAKE
STORET NUMBER: 3403

NYGAARD TROPHIC STATE INDICES

DATE	04 16 73	10 01 73
MYXOPHYCEAN	03/0 E	06/0 E
CHLOROPHYCEAN	06/0 E	17/0 E
EUGLENOPHYTE	0.22 E	0.09 ?
DIATOM	0.43 E	1.00 E
COMPOUND	14/0 E	29/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 16 73	10 01 73
GENUS	09	01
SPECIES	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 16 73	10 01 73
AVERAGE DIVERSITY	H	3.05	3.65
NUMBER OF TAXA	S	27.00	41.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	3.00
MAXIMUM DIVERSITY	MAXH	4.75	5.36
TOTAL DIVERSITY	D	27166.35	5146.50
TOTAL NUMBER OF INDIVIDUALS/ML	N	8907.00	1410.00
EVENESS COMPONENT	J	0.64	0.68
MEAN NUMBER OF INDIVIDUALS/TAXA	L	329.89	34.39
NUMBER/ML OF MOST ABUNDANT TAXON	K	3099.00	309.00

LAKE NAME: GREENWOOD LAKE CONTINUED
STORET NUMBER: 3403

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
ANABAENA OSCILLAROIDES	FIL					5.7	81
ANABAENA PLANCTONICA	FIL					6.9	97
ASTERIONELLA FORMOSA	CEL	1	34.8	3099			
ATTHEYA	CEL						X
CENTRIC DIATOM	CEL					9.2	130
CHLOROPHYTAN CELL	CEL		1.0	85			X
CHROOCOCCUS	COL		0.2	17			
CHROCOCCUS ?	COL						X
COELASTRUM RETICULATUM	COL					2.3	32
COLONY	COL		0.2	17			
CYANOPHYTAN COLONY	COL					2.3	32
CYANOPHYTAN FILAMENT	FIL						X
CYCLOTELLA BODANICA	CEL		4.2	373			
CYMBELLA	CEL			X			
DICTYOSPHAERIUM EHRENBERGIANUM ?	COL						X
DICTYOSPHAERIUM PULCHELLUM	COL		0.4	34			
DINOBRYON BAVARICUM	CEL		0.4	34			
DINOBRYON DIVERGENS	CEL					3.5	49
DINOBRYON SERTULARIA	CEL		2.1	186			X
DINOFLAGELLATE	CEL			X			
EUGLENA	CEL			X			
EUGLENA #1	CEL						X
FLAGELLATE #1	CEL				5	21.9	309
FLAGELLATE #2	CEL				2	10.4	146
FLAGELLATES	CEL	3	16.2	1439			
FRAGILARIA CROTONENSIS	CEL	2	13.3	1185			X
GOLENKINIA	CEL						X
GOMPHONEMA CONSTRICTUM	CEL						X
MALLOMONAS	CEL						X
MELOSIRA #2	CEL		5.1	457			
MELOSIRA GRANULATA	CEL				1	10.4	146
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL				3	5.7	81

LAKE NAME: GREENWOOD LAKE
STORET NUMBER: 3403

CONTINUED

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
MERISMOPEDIA	COL					1.1	16
MICRACTINIUM PUSILLUM	COL		0.4	34			
MOUGEOTIA	FIL						X
NAVICULA LANCEOLATA	CEL		0.2	17			
OCCYSTIS	CEL			X		4.6	65
OSCILLATORIA #1	FIL		0.4	34			
OSCILLATORIA LIMNETICA	FIL	5	4.4	389			
PANDORINA MORUM	COL						X
PECIASTRUM ANGULOSUM ? V. GRANULATUM	COL						X
PEDIASTRUM BIRADIATUM	COL						X
PECIASTRUM BORYANUM	COL						X
PEDIASTRUM DUPLEX	COL						X
PEDIASTRUM TETRAS V. TETRAODON	COL						X
PENNATE DIATOM	CEL					2.3	32
PHACUS PYRUM	CEL						X
QUADRIGULA ?	CEL						X
SCENEDESMUS	COL						X
SCENEDESMUS ACUMINATUS	COL						X
SCENEDESMUS PROTUBERANS	COL					2.3	32
SCENEDESMUS QUADRICAUDA	COL			X			
SCHROEDERIA	CEL					2.3	32
STEPHANODISCUS	CEL		3.2	288			
SYNEDRA #1	CEL		0.6	51			
SYNEDRA #2	CEL	4	9.9	880			
TABELLARIA FENESTRATA	CEL		1.5	135	4	8.1	114
TETRAEDRON	CEL						X
TETRAEDRON MINIMUM	CEL		0.6	51			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL					1.1	16
TETRAEDRON TRIGONUM	CEL						X

LAKE NAME: GREENWOOD LAKE
STORET NUMBER: 3403

CONTINUED

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
TETRASTRUM HETERACANTHUM	COL		1.0	85			
TRACHELOMONAS	CEL		0.2	17			
TOTAL				8907			1410

LAKE NAME: ORADELL RES.
STORET NUMBER: 3406

NYGAARD TROPHIC STATE INDICES

DATE	04 16 73	07 22 73	10 01 73
MYXOPHYCEAN	1.50 E	2.00 E	1.00 E
CHLOROPHYCEAN	4.50 E	10.0 E	3.00 E
EUGLENOPHYTE	0.08 ?	0.04 ?	0/16 ?
DIATOM	0.44 E	0.40 E	1.25 E
COMPOUND	8.50 E	14.5 E	5.25 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 16 73	07 22 73	10 01 73
GENUS	09	09	10
SPECIES	00	02	02

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 16 73	07 22 73	10 01 73
AVERAGE DIVERSITY	H	2.13	2.98	1.26
NUMBER OF TAXA	S	32.00	42.00	31.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	5.00	5.39	4.95
TOTAL DIVERSITY	D	49722.72	17242.28	23720.76
TOTAL NUMBER OF INDIVIDUALS/ML	N	23344.00	5786.00	18826.00
EVENESS COMPONENT	J	0.43	0.55	0.25
MEAN NUMBER OF INDIVIDUALS/TAXA	L	729.50	137.76	607.29
NUMBER/ML OF MOST ABUNDANT TAXON	K	11445.00	2011.00	15566.00

LAKE NAME: ORADELL RES.
STORET NUMBER: 3406

CONTINUED

TAXA	FORM	04 16 73 S	%C	ALGAL UNITS PER ML	07 22 73 S	%C	ALGAL UNITS PER ML	10 01 73 S	%C	ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA V. DUBIA	CEL			X						
ACTINASTRUM HANTZSCHII	COL			X						
AMPHORA	CEL				0.4		21			
ANABAENA	FIL				0.4		21	5	1.1	214
ANKISTRODESMUS	CEL		0.2	57			X			
ASTERIONELLA	CEL						X			
ASTERIONELLA FORMOSA	CEL	1	49.0	11445						X
CENTRIC DIATOM	CEL				4.6		269		0.9	171
CHLOROCOCCALEAN COLONY	COL				0.4		21			X
CHLOROPHYTAN CELL	CEL								0.7	129
CLOSTERIUM	CEL			X					0.2	43
COELASTRUM MICROPORUM	COL									X
COELASTRUM RETICULATUM	COL				3	3.6	207			
COELASTRUM RETICULATUM ?	COL							2	5.2	986
COELASTRUM SPHAERICUM	COL				2.5		145			
COELOSPHAERIUM NAEGELIANUM	COL			X	0.4		21		0.5	86
COSMARIUM	CEL						X			X
CRUCIGENIA APICULATA	COL						X			
CYCLOTELLA STELLIGERA	CEL						X			X
DICTYOSPHAERIUM PULCHELLUM	COL		0.2	57						X
DINOBRYON SERTULARIA	CEL		0.4	85						
DINOFLAGELLATE	CEL		0.4	85						
ELAKATOTHRIX VIRIDIS ?	COL								0.2	43
EUDORINA ?	COL			X						
EUGLENA	CEL			X	0.4		21			
FLAGELLATES	CEL	2	19.4	4521	2.5		145		1.6	300
FRAGILARIA CROTONENSIS	CEL			X	1	34.8	2011	1	82.7	15566
LAGERHEIMIA LONGISETA	CEL	5	2.8	650						
MELOSIRA #2	CEL		0.8	198					0.5	86
MELOSIRA DISTANS	CEL		0.2	57						
MELOSIRA GRANULATA	CEL						X	4	1.8	343

LAKE NAME: ORADELL RES. CONTINUED
STORET NUMBER: 3406

TAXA	FORM	04 16 73 S	%C	ALGAL UNITS PER ML	07 22 73 S	%C	ALGAL UNITS PER ML	10 01 73 S	%C	ALGAL UNITS PER ML
MERISMOPEDIA	COL						X			X
NAVICULA #1	CEL			X		0.4	21			X
NAVICULA #2	CEL						X			
NAVICULA #3	CEL			X						
NAVICULA CRYPTOCEPHALA	CEL			X						
NAVICULA PUPULA V. MUTATA ?	CEL						X			
NITZSCHIA #1	CEL			X			X			X
NITZSCHIA #2	CEL						X			
OOCYSTIS	CEL				5	8.6	498		0.5	86
OSCILLATORIA #1	FIL			X						
OSCILLATORIA CHLORINA	FIL			X						
OSCILLATORIA CHLORINA ?	FIL					3.2	187		0.5	86
PEDIASTRUM DUPLEX V. ?	COL			X						
PEDIASTRUM DUPLEX V. CLATHRATUM	COL					0.4	21			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL				4	1.1	62	3	2.1	386
PENNATE DIATOM	CEL					2.5	145			
SCENEDESMUS	COL					0.7	41		0.2	43
SCENEDESMUS ?	COL					0.4	21			
SCENEDESMUS #1	COL			X		0.4	21			
SCENEDESMUS #2	COL					0.4	21			
SCENEDESMUS #3	COL									X
SCENEDESMUS #4	COL						X			
SCENEDESMUS ABUNDANS	COL			X						
SCENEDESMUS ARCUATUS	COL								0.2	43
SCENEDESMUS ARCUATUS ?	COL						X			
SCENEDESMUS BIJUGA	COL					1.1	62			
SCENEDESMUS CARINATUS ?	COL						X			
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL			X						

LAKE NAME: CRADELL RES.
STORET NUMBER: 3406

CONTINUED

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
SCENEDESMUS OPOLIENSIS	COL		0.4	85						
SCENEDESMUS PROTUBERANS ?	COL					0.4	21			
SCHROEDERIA SETIGERA	CEL					1.1	62		0.5	86
SPHAEROCYSTIS ?	CEL				2	28.3	1638			X
STAURASTRUM #1	CEL			X						X
STAURASTRUM #2	CEL									X
STAURASTRUM #3	CEL						X			
STAURASTRUM TETRACERUM	CEL	4	13.3	3108						
STEPHANODISCUS #1	CEL	3	12.1	2826		0.7	41		0.7	129
STEPHANODISCUS ASTRAEA V. ANGLSTISSIMA	CEL		0.7	170		0.4	21			
SYNEDRA DELICATISSIMA	CEL			X						
SYNEDRA ULNA	CEL					0.4	21			
TETRAEDRON										
TOTAL				23344			5786			18826

LAKE NAME: PINECLIFF LAKE
STORET NUMBER: 3409

NYGAARD TROPHIC STATE INDICES

DATE	04 16 73	07 23 73	10 02 73
MYXOPHYCEAN	0/01 O	0.71 E	1.00 E
CHLOROPHYCEAN	5.00 E	4.71 E	4.50 E
EUGLENOPHYTE	0.17 ?	0.16 ?	0.05 ?
DIATOM	0.29 ?	1.50 E	3.00 E
COMPOUND	12.0 E	7.14 E	6.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 16 73	07 23 73	10 02 73
GENUS	03	05	05
SPECIES	02	04	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 16 73	07 23 73	10 02 73
AVERAGE DIVERSITY	H	2.90	4.16	0.79
NUMBER OF TAXA	S	35.00	66.00	36.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	1.00	2.00
MAXIMUM DIVERSITY	MAXH	5.13	6.04	5.17
TOTAL DIVERSITY	D	11982.80	14564.16	28291.48
TOTAL NUMBER OF INDIVIDUALS/ML	N	4132.00	3501.00	35812.00
EVENESS COMPONENT	J	0.57	0.59	0.15
MEAN NUMBER OF INDIVIDUALS/TAXA	L	118.06	53.05	994.78
NUMBER/ML OF MOST ABUNDANT TAXON	K	1187.00	863.00	32206.00

LAKE NAME: PINECLIFF LAKE
STORET NUMBER: 3409

CONTINUED

TAXA	FORM	04 16 73 S	%C	ALGAL UNITS PER ML	07 23 73 S	%C	ALGAL UNITS PER ML	10 02 73. S	%C	ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA V. DUBIA	CEL			X						
ACTINASTRUM HANTZSCHII	COL		3.6	148			X			
ANABAENA #1	FIL				4	3.3	116			
ANABAENA #2	FIL				3	7.2	253			X
ANKISTRODESMUS ?	CEL	5	12.6	519						
ASTERICNELLA FORMOSA	CEL						X			
ASTERICNELLA FORMOSA V. GRACILLIMA	CEL		2.3	93						
ATTHEYA	CEL					2.1	74			
BOTRYOCOCCUS BRAUNII	COL						X			
CENTRIC DIATOM	CEL		0.4	18						
CERATIUM HIRUNDINELLA	CEL									X
CHLOROPHYTAN COLONY	COL			X						
CLOSTERIUM #1	CEL					0.9	32			
CLOSTERIUM #2	CEL						X			
COCCONEIS	CEL			X						
COELASTRUM RETICULATUM	COL					0.6	21			X
COELASTRUM SPHAERICUM	COL					0.9	32			X
COELOSPHAERIUM NAEGELIANUM	COL								0.2	64
COSMARIUM	CEL					1.2	42			
COSMARIUM #1	CEL									X
COSMARIUM #2	CEL			X			X			
CRUCIGENIA APICULATA	COL						X			
CRUCIGENIA TETRAPEDIA	COL						X			
CRYPTOMONAS RUFESCENS	CEL							1	89.9	32206
CYMBELLA	CEL		0.4	18						
DACTYLOCOCCOPSIS	CEL					2.1	74			
DICTYOSPHAERIUM PULCHELLUM	COL					3.9	137			X
DINOBRYON BAVARICUM	CEL		0.4	18						
DINOFLAGELLATE	CEL			X		0.3	11			
EUDORINA ELEGANS	COL									X

LAKE NAME: PINECLIFF LAKE
STORET NUMBER: 3409

CONTINUED

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
EUGLENA #1	CEL		0.9	37			X			
EUGLENA #2	CEL					0.6	21			
FLAGELLATES	CEL	2	28.7	1187		7.2	253	4	2.9	1031
FRAGILARIA	CEL		4.5	185						
FRAGILARIA CROTONENSIS	CEL				2	11.1	389			
FRANCEIA	CEL					0.3	11			
GYRCSIGMA SPENCERII	CEL			X			X			
HANTZSCHIA	CEL			X						
LAGERHEIMIA	CEL						X			
LUNATE CELLED COLONY	CEL								0.2	64
MALLOMONAS	CEL		1.8	74						
MELOSIRA #2	CEL		3.6	148	5	5.4	189	2	2.2	773
MELOSIRA DISTANS	CEL					6.6	231			
MELOSIRA GRANULATA	CEL			X	1	24.7	863		0.4	129
MELOSIRA VARIANS	CEL	1	6.3	260		0.6	21			
MICROCYSTIS AERUGINOSA	COL						X			X
MICROCYSTIS INCERTA	COL					0.6	21			X
MOUGEOTIA ?	FIL						X			
NAVICULA	CEL									X
NAVICULA #1	CEL			X						
NAVICULA #2	CEL			X						
NITZSCHIA	CEL					0.3	11			
NITZSCHIA #1	CEL			X						
NITZSCHIA #2	CEL			X						
COCYSTIS	CEL									X
OPHIOCYTIUM CAPITATUM	CEL						X			
PANDORINA MORUM	COL						X			
PEDIASTRUM BORYANUM	COL					0.3	11			X
PEDIASTRUM DUPLEX V. DUODENARIUM	COL						X			
PEDIASTRUM DUPLEX V. RETICULATUM	COL					0.6	21	3	0.5	193

LAKE NAME: PINECLIFF LAKE CONTINUED
STORET NUMBER: 3409

TAXA	FORM	04 15 73 S	04 15 73 %C	04 15 73 ALGAL UNITS PER ML	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
PEDIASTRUM SIMPLEX V. DUODENARIUM	CCL						X			X
PEDIASTRUM TETRAS V. TETRAODON	COL					0.9	32			X
PENNATE DIATOMS	CEL	4	9.4	389						
PHACUS ACUMINATUS	CEL					1.2	42			
PHACUS LONGICAUDA	CEL						X			
PHACUS TORTUS	CEL						X			
QUADRIGULA CLOSTERICIDES	CEL								0.2	64
SCENEDESMUS	COL			X						
SCENEDESMUS #1	COL			X		0.9	32			
SCENEDESMUS #2	COL					0.3	11			
SCENEDESMUS ABUNDANS	COL					0.3	11			
SCENEDESMUS BIJUGA	COL						X			
SCENEDESMUS DENTICULATUS	COL						X		0.5	193
SCENEDESMUS DIMORPHUS	COL						X			X
SCENEDESMUS INTERMEDIUS ?	COL			X						
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL					0.6	21			X
SCENEDESMUS LONGUS V. NAEGELII	COL									X
SCENEDESMUS OPOLIENSIS	COL					3.3	116		0.2	64
SCENEDESMUS QUADRICAUDA	COL					2.4	84		0.5	193
SCHROEDERIA SETIGERA	CEL					1.8	63			
STAURASTRUM #1	CEL						X			X
STAURASTRUM #2	CEL						X		0.4	129
STAURASTRUM #3	CEL					0.3	11			X
STAURONEIS	CEL			X						
STEPHANODISCUS	CEL	3	25.1	1038		1.2	42	5	1.3	451
SURIRELLA	CEL			X						
SURIRELLA ANGUSTATA	CEL			X						
SYNEDRA #1	CEL			X						

LAKE NAME: PINECLIFF LAKE
STORET NUMBER: 3409

CONTINUED

TAXA	FORM	04 16 73 S	%C	ALGAL UNITS PER ML	07 23 73 S	%C	ALGAL UNITS PER ML	10 02 73 S	%C	ALGAL UNITS PER ML
SYNEDRA #2	CEL			X						
TETRAEDRON #1	CEL						X			
TETRAEDRON HASTATUM ?	CEL									X
TETRAEDRON LIMNETICUM	CEL						X			X
TETRAEDRON MINIMUM	CEL						X			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL			X		0.6	21			
TETRAEDRON PENTAEDRICUM	CEL					0.3	11			
TETRAEDRON REGULARE V. INCUS	CEL					0.9	32			
TETRAEDRON TRIGONUM	CEL					0.9	32		0.4	129
TETRASTRUM HETERACANTHUM	COL					0.9	32			
TRACHELOMONAS	CEL					2.1	74		0.4	129
TREUBARIA	CEL						X			
TOTAL				4132			3501			35812

LAKE NAME: POMPTON LAKE
STORET NUMBER: 3410

NYGAARD TROPHIC STATE INDICES

DATE	04 17 73	07 22 73	10 02 73
MYXOPHYCEAN	01/0 E	02/0 E	3.00 E
CHLOROPHYCEAN	01/0 E	04/0 E	22.0 E
EUGLENOPHYTE	0.50 E	0.33 E	0/25 ?
DIATOM	0.22 ?	0.21 ?	0.46 E
COMPOUND	07/0 E	11/0 E	31.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 17 73	07 22 73	10 02 73
GENUS	04	11	08
SPECIES	00	04	05

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 17 73	07 22 73	10 02 73
AVERAGE DIVERSITY	H	2.99	3.21	2.22
NUMBER OF TAXA	S	28.00	26.00	50.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.81	4.70	5.64
TOTAL DIVERSITY	D	10180.95	8917.38	51643.86
TOTAL NUMBER OF INDIVIDUALS/ML	N	3405.00	2778.00	23263.00
EVENESS COMPONENT	J	0.62	0.68	0.39
MEAN NUMBER OF INDIVIDUALS/TAXA	L	121.61	106.85	465.26
NUMBER/ML OF MOST ABUNDANT TAXON	K	1147.00	634.00	8489.00

LAKE NAME: POMPTON LAKE
STORET NUMBER: 3410

CONTINUED

TAXA	FORM	04 17 73 S	04 17 73 %C	04 17 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII	COL									X
ANABAENA	FIL						X		0.3	67
ANKISTRODESMUS	CEL					2.6	73			
APHANIZOMENON ?	CEL				1	21.9	609			X
ASTERIONELLA	CEL									X
ASTERIONELLA FORMOSA	CEL		6.0	203			X			
COCCONEIS	CEL									X
COCCONEIS PLACENTULA V. EUGLYPTA	CEL					0.9	24			
COELASTRUM RETICULATUM	COL								0.9	200
COELASTRUM SPHAERICUM	COL								0.3	67
CYANOPHYTAN FILAMENT	FIL			X						
CYCLOTELLA MENEGHINIANA	CEL					4.4	122	3	4.3	1003
CYCLOTELLA PSEUDOSTELLIGERA ?	CEL									X
CYMBELLA	CEL						X			X
CYMBELLA TUMIDA	CEL		0.4	12						X
DIATOMA	CEL			X			X			X
DICTYOSPHAERIUM PULCHELLUM	COL									
DINOBRYON SERTULARIA ?	CEL		0.7	24						
DINOFLAGELLATE	CEL			X						
EUDORINA ELEGANS	CEL								0.3	67
EUGLENA	CEL		1.1	36		0.9	24			
FLAGELLATE #1	CEL							2	25.9	6016
FLAGELLATE #2	CEL							4	36.5	8489
FLAGELLATES	CEL	3	4.9	167	4	11.4	317			
FRAGILARIA	CEL		3.1	107						
FRAGILARIA CONSTRUENS	CEL					6.2	171			
FRAGILARIA CROTONENSIS	CEL		2.1	72			X			X
FRUSTULIA RHOMBOIDES V. AMPHIPLEUROIDES	CEL			X						
GOMPHONEMA	CEL						X			X
GYROSIGMA	CEL			X						

LAKE NAME: POMPTON LAKE
STORET NUMBER: 3410

CONTINUED

TAXA	FORM	04 17 73 S	04 17 73 %C	04 17 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
FANTZSCHIA	CEL			X						X
KIRCHNERIELLA	CEL									X
MALLOMONAS	CEL									
MELOSIRA	CEL	2	17.2	585						
MELOSIRA #2	CEL							5	2.0	468
MELOSIRA #4	CEL				2	22.8	634			
MELOSIRA GRANULATA	CEL		1.4	48				1	25.9	6016
MELOSIRA VARIANS	CEL		1.4	48	3	7.0	195			X
MICRACTINIUM	COL								0.3	67
MICROCYSTIS AERUGINOSA	COL									X
NAVICULA	CEL		0.4	12						
NAVICULA CAPITATA	CEL									X
NAVICULA PEREGRINA	CEL			X						
NAVICULA PUPULA V. MUTATA	CEL									X
NAVICULA SECRETA ? V. APICULATA	CEL	5	12.3	418		9.6	268			X
NAVICULA VIRIDULA	CEL	1	33.7	1147	5	7.0	195			X
NITZSCHIA	CEL		1.1	36		0.9	24			
NITZSCHIA #1	CEL									X
OOCYSTIS	CEL									X
PANDORINA MORUM	COL								0.3	67
PEDIASTRUM DUPLEX V. ?	COL									X
PEDIASTRUM DUPLEX V. CLATHRATUM	COL									X
PEDIASTRUM SIMPLEX	COL			X						X
PEDIASTRUM TETRAS V. TETRAODON	COL									X
PENNATE DIATOM	CEL		0.4	12						
QUADRIGULA	CEL									X
SCENEDESMUS #1	COL								0.6	134

LAKE NAME: POMPTON LAKE
STORET NUMBER: 3410

CONTINUED

TAXA	FORM	04 17 73 S	04 17 73 %C	04 17 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
SCENEDESMUS #2	COL								0.3	67
SCENEDESMUS #3	COL									X
SCENEDESMUS #4	COL									X
SCENEDESMUS ACUMINATUS	COL									X
SCENEDESMUS DENTICULATUS ?	COL									X
SCENEDESMUS DENTICULATUS V. LINEARIS	COL					0.9	24			
SCENEDESMUS DIMORPHUS	COL					1.8	49			
SCENEDESMUS OPOLIENSIS	COL					1.8	49			
SCENEDESMUS PROTUBERANS	COL									X
SPHAEROCYSTIS SCHROETERI ?	COL									X
STAURASTRUM	CEL									X
STEPHANODISCUS	CEL								2.3	535
STEPHANODISCUS ?	CEL	4	12.6	430						
SURIRELLA	CEL		0.7	24						
SURIRELLA #1	CEL						X			
SURIRELLA #2	CEL						X			
SYNEDRA	CEL			X						
SYNEDRA #1	CEL		0.7	24						X
SYNEDRA #2	CEL						X			
SYNEDRA ULNA	CEL			X						
SYNEDRA ULNA V. OXYRHYNCHUS F. MEDIOCONTRACTA	CEL						X			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL									X
TETRAEDRON MUTICUM	CEL									X
TRACHELOMONAS	CEL						X			
TOTAL				3405			2778			23263

LAKE NAME: DUHERNAL LAKE
STORET NUMBER: 3412

NYGAARD TROPHIC STATE INDICES

DATE	07 22 73	10 02 73
MYXOPHYCEAN	02/0 E	1.00 E
CHLOROPHYCEAN	0/0 O	1.00 E
EUGLENOPHYTE	0.50 E	1.00 E
DIATOM	0.07 ?	0/04 ?
COMPOUND	04/0 E	4.00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	07 22 73	10 02 73
GENUS	05	00
SPECIES	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		07 22 73	10 02 73
AVERAGE DIVERSITY	H	2.67	0.50
NUMBER OF TAXA	S	20.00	14.00
NUMBER OF SAMPLES COMPOSITED	M	1.00	1.00
MAXIMUM DIVERSITY	MAXH	4.32	3.81
TOTAL DIVERSITY	D	624.78	1664.50
TOTAL NUMBER OF INDIVIDUALS/ML	N	234.00	3329.00
EVENESS COMPONENT	J	0.62	0.13
MEAN NUMBER OF INDIVIDUALS/TAXA	L	11.70	237.79
NUMBER/ML OF MOST ABUNDANT TAXON	K	54.00	3068.00

LAKE NAME: DUHERNAL LAKE
STORET NUMBER: 3412

CONTINUED

TAXA	FORM	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
ANABAENA	FIL						X
COCCONEIS	CEL			X			
COELASTRUM SPHAERICUM	COL						X
DACTYLOCOCCOPSIS	CEL		7.7	18			
DINOBRYON BAVARICUM	CEL						X
DINOBRYON SERTULARIA	CEL				2	5.6	186
DINOFLAGELLATE	CEL				3	0.6	19
EUGLENA #1	CEL	2	7.7	18			
EUGLENA #2	CEL						X
EUNOTIA	CEL			X			
EUNOTIA ELEGANS	CEL	4	23.1	54	4	1.1	37
EUNOTIA PECTINALIS	CEL			X			
FLAGELLATES	CEL		7.7	18	1	92.2	3068
FRAGILARIA	CEL	5	15.4	36			
FRUSTULIA RHOMBOIDES	CEL			X			X
FRUSTULIA RHOMBOIDES V. SAXONICA	CEL			X			
MELOSIRA #2	CEL			X			
MOUGEOTIA ?	FIL						X
NAVICULA HALOPHILA F. TENUIROSTRIS	CEL			X			
NITZSCHIA	CEL			X			
OSCILLATORIA ?	FIL	1	23.1	54			
PHACUS TORTUS	CEL						X
PINNULARIA	CEL			X			X
PINNULARIA #2	CEL			X			
STAURASTRUM	CEL				5	0.6	19
SURIRELLA	CEL			X			
SYNEDRA	CEL			X			
TABELLARIA	CEL	3	15.4	36			
TABELLARIA FENESTRATA	CEL			X			X
TOTAL				234			3329

LAKE NAME: FARRINGTON LAKE
STORET NUMBER: 3413

NYGAARD TROPHIC STATE INDICES

DATE	07 22 73	10 02 73
MYXOPHYCEAN	0.67 E	0.67 E
CHLOROPHYCEAN	4.67 E	0.33 ?
EUGLENOPHYTE	0.19 ?	0.33 E
DIATOM	1.25 E	1.00 E
COMPOUND	8.00 E	2.33 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	07 22 73	10 02 73
GENUS	17	06
SPECIES	02	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		07 22 73	10 02 73
AVERAGE DIVERSITY	H	2.87	1.44
NUMBER OF TAXA	S	34.00	18.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00
MAXIMUM DIVERSITY	MAXH	5.09	4.17
TOTAL DIVERSITY	D	18698.05	17091.36
TOTAL NUMBER OF INDIVIDUALS/ML	N	6515.00	11869.00
EVENESS COMPONENT	J	0.56	0.35
MEAN NUMBER OF INDIVIDUALS/TAXA	L	191.62	659.39
NUMBER/ML OF MOST ABUNDANT TAXON	K	2660.00	8474.00

LAKE NAME: FARRINGTON LAKE
STORET NUMBER: 3413

CONTINUED

TAXA	FORM	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII	COL					0.2	28
ANKISTRODESMUS	CEL		1.5	99			
ASTERIONELLA FORMOSA	CEL				5	3.0	359
ASTERIONELLA FORMOSA V. GRACILLIMA	CEL		0.4	25			
ATTHEYA	CEL	4	9.5	621		0.5	55
CENTRIC DIATOM	CEL		0.8	50			
CERATIUM HIRUNDINELLA	CEL					0.2	28
CHLOROPHYTAN COLONY	COL		0.8	50		0.5	55
CLOSTERIUM	CEL			X			
COCCONEIS	CEL						X
COELASTRUM SPHAERICUM	COL			X			
COELOSPHAERIUM NAEGELIANUM	COL						X
COSMARIUM	CEL						X
CRUCIGENIA APICULATA	COL			X			
CYCLOTELLA ?	CEL						X
DINOBRYON BAVARICUM	CEL						X
DINOBRYON SERTULARIA	CEL				2	16.3	1932
EUGLENA	CEL		0.4	25		0.5	55
EUNOTIA	CEL		0.4	25			
FLAGELLATES	CEL	3	13.7	895	1	71.4	8474
MELOSIRA #2	CEL			X	3	4.4	524
MELOSIRA DISTANS	CEL	1	40.8	2660			X
MELOSIRA VARIANS	CEL		0.8	50			
MICRACTINIUM PUSILLUM	COL		0.4	25			
NEPHROCYTIUM	COL		0.4	25			
NITZSCHIA	CEL		3.4	224			
OPHIOCYTIUM CAPITATUM	CEL		0.8	50			
OSCILLATORIA #1	FIL	5	5.0	323			
OSCILLATORIA #2	FIL			X			
PEDIASTRUM TETRAS V. TETRAODON	COL			X			

LAKE NAME: FARRINGTON LAKE
STORET NUMBER: 3413

CONTINUED

TAXA	FORM	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
SCENEDESMUS ANOMALUS V. ACAUDATUS	COL		1.2	75			
SCENEDESMUS BIJUGA	COL			X			
SCENEDESMUS DENTICULATUS	COL		0.4	25			
SCENEDESMUS DENTICULATUS V. LINEARIS	COL		0.4	25			
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL		0.8	50			
SCENEDESMUS OPOLIENSIS	COL		1.5	99			
SCHROEDERIA	CEL		0.4	25			
STAURASTRUM #1	CEL			X		0.2	28
STAURASTRUM #2	CEL			X			X
SYNEDRA	CEL		0.8	50			
TABELLARIA QUADRISEPTA	CEL				4	2.8	331
TRACHELOMONAS #1	CEL	2	15.6	1019			
TRACHELOMONAS #2	CEL			X			
TREUBARIA	CEL			X			
TOTAL				6515			11869

LAKE NAME: LAKE POPATCONG
STORET NUMBER: 3415

NYGAARD TROPHIC STATE INDICES

DATE	04 18 73	07 23 73	10 02 73
MYXOPHYCEAN	02/0 E	1.67 E	0.67 E
CHLOROPHYCEAN	03/0 E	3.33 E	3.67 E
EUGLENOPHYTE	0/05 ?	0.07 ?	0.15 ?
DIATOM	0.33 E	1.00 E	0.67 E
COMPOUND	08/0 E	6.33 E	5.67 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 18 73	07 23 73	10 02 73
GENUS	14	01	10
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 18 73	07 23 73	10 02 73
AVERAGE DIVERSITY	H	2.64	2.79	3.29
NUMBER OF TAXA	S	21.00	34.00	28.00
NUMBER OF SAMPLES COMPOSITED	M	5.00	5.00	5.00
MAXIMUM DIVERSITY	MAXH	4.39	5.09	4.81
TOTAL DIVERSITY	D	112698.96	10403.91	13215.93
TOTAL NUMBER OF INDIVIDUALS/ML	N	42689.00	3729.00	4017.00
EVENESS COMPONENT	J	0.60	0.55	0.68
MEAN NUMBER OF INDIVIDUALS/TAXA	L	2032.81	109.68	143.46
NUMBER/ML OF MOST ABUNDANT TAXON	K	17638.00	1054.00	1240.00

LAKE NAME: LAKE HOPATCONG
STORET NUMBER: 3415

CONTINUED

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
ANABAENA	FIL								2.2	97
APHANOCAPSA	COL					0.7	27			
ASTERIONELLA	CEL								0.9	35
ASTERIONELLA FORMOSA	CEL	2	19.8	8435		3.6	135			
ATTHEYA	CEL						X			
CENTRIC DIATOM	CEL		0.6	256						
CERATIUM HIRUNDINELLA	CEL						X		0.4	18
CHROOCOCCUS	COL		0.2	85			X			
CLOSTERIUM	CEL						X			
COCCONEIS	CEL			X						
COELASTRUM MICROPORUM	COL						X			
COELASTRUM RETICULATUM	COL									X
COELOSPHAERIUM NAEGELIANUM	COL						X		0.4	18
CRUCIGENIA RECTANGULARIS ?	COL									X
CRUCIGENIA TETRAPEDIA	COL	4	8.4	3579		0.7	27		3.9	157
CYCLOTELLA BODANICA ?	COL									
CICTYOSPHAERIUM PULCHELLUM	CEL		2.2	937			X			
DINOBRYON BAVARICUM	CEL									
DINOBRYON DIVERGENS	CEL				4	8.0	297			
DINOBRYON SOCIALE	CEL		0.8	341						
DINOBRYON SOCIALE ?	CEL						X			X
DINOBRYON SPP.	CEL							3	10.0	401
DINOFLAGELLATE	CEL								0.4	18
EPIPHYTIC FLAGELLATE	CEL				5	6.5	243			
EUDORINA	CEL					1.4	54			
EUDORINA ELEGANS	CEL			X			X			
EUGLENA	CEL								1.3	52
FLAGELLATES	CEL		5.4	2301	3	23.9	892	2	17.8	717
FRAGILARIA	CEL								4.4	175
FRAGILARIA CROTONENSIS	CEL	5	7.2	3067	2	19.6	730			
GOLENKINIA	CEL						X			
KIRCHNERIELLA	CEL								6.1	245

LAKE NAME: LAKE POPATCONG
STORET NUMBER: 3415

CONTINUED

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
LUNATE CELLED COLONY	COL						X			
MELOSIRA #2	CEL		1.6	682			X	1	30.9	1240
MICROCYSTIS INCERTA	COL					2.2	81			
OOCYSTIS	CEL						X			
OOCYSTIS #1	CEL								0.4	18
OOCYSTIS #2	CEL								0.9	35
OSCILLATORIA LIMNETICA	FIL		1.6	682			X			
PANDORINA MORUM	COL					0.7	27			
PEDIASTRUM BORYANUM	COL						X		0.4	18
PEDIASTRUM DUPLEX V. CLATHRATUM	COL						X			
PEDIASTRUM DUPLEX V. GRACILIMUM	COL									X
PENNATE DIATOMS	CEL							5	5.1	205
PHACUS	CEL								0.4	18
PHACUS PYRUM ?	CEL						X			
QUADRIGULA CLOSTERIOIDES	CEL						X			
SCENEDESMUS	COL			X					1.3	52
SCENEDESMUS #1	COL		0.2	85						
SCENEDESMUS #2	COL		0.2	85						
SCENEDESMUS OPOLIENSIS	COL						X			
SPHAEROCYSTIS	COL					2.2	81			
STAURASTRUM #1	CEL						X		1.3	52
STAURASTRUM #2	CEL						X			X
STAURASTRUM #3	CEL								0.4	18
STAURONEIS	CEL			X						
STEPHANODISCUS	CEL							4	9.6	384
STEPHANODISCUS ASTRAEA	CEL					2.2	81			
SURIRELLA ANGUSTATA	CEL			X						
SYNEDRA #1	CEL	3	9.8	4175						
SYNEDRA #2	CEL			X						
TABELLARIA FENESTRATA	CEL	1	41.3	17638	1	28.3	1054			

LAKE NAME: LAKE HOPATCONG
STORET NUMBER: 3415

CONTINUED

TAXA	FORM	04 18 73 S	%C	ALGAL UNITS PER ML	07 23 73 S	%C	ALGAL UNITS PER ML	10 02 73 S	%C	ALGAL UNITS PER ML
TABELLARIA FLOCCULOSA	CEL		0.8	341						
TETRAEDRON REGULARE V. GRANULATA	CEL								0.9	35
TETRAEDRON REGULARE V. INCUS	CEL								0.4	18
TOTAL				42689			3729			4017

LAKE NAME: LAKE MUSCONETCONG
STORET NUMBER: 3417

NYGAARD TROPHIC STATE INDICES

DATE	07 23 73	10 01 73
MYXOPHYCEAN	0.60 E	3.00 E
CHLOROPHYCEAN	3.80 E	8.00 E
EUGLENOPHYTE	0.05 ?	0.09 ?
DIATOM	1.00 E	0.25 ?
COMPOUND	5.00 E	13.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	07 23 73	10 01 73
GENUS	02	04
SPECIES	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		07 23 73	10 01 73
AVERAGE DIVERSITY	H	1.90	1.84
NUMBER OF TAXA	S	40.00	19.00
NUMBER OF SAMPLES COMPOSITED	M	1.00	1.00
MAXIMUM DIVERSITY	MAXH	5.32	4.25
TOTAL DIVERSITY	D	8365.70	1816.08
TOTAL NUMBER OF INDIVIDUALS/ML	N	4403.00	987.00
EVENESS COMPONENT	J	0.36	0.43
MEAN NUMBER OF INDIVIDUALS/TAXA	L	110.08	51.95
NUMBER/ML OF MOST ABUNDANT TAXON	K	3190.00	580.00

LAKE NAME: LAKE MUSCONETCONG
STORET NUMBER: 3417

CONTINUED

TAXA	FORM	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII	COL	5	1.0	44			
ANABAENA	FIL		.5	22			X
ANKISTRODESMUS	CEL		2.0	88			
CERATIUM HIRUNDINELLA	CEL		0.5	22		0.8	8
CHROOCOCCUS	COL						
CLOSTERIUM #1	CEL		0.5	22			
CLOSTERIUM #2	CEL		0.5	22			X
COCCONEIS	CEL						
COELASTRUM MICROPORUM	COL		1.0	44			
COELOSPHAERIUM	COL			X			
COSMARIUM	CEL			X			
CRUCIGENIA TETRAPEDIA	CEL					1.7	17
DACTYLOCOCCOPSIS	COL					1.7	17
DICTYOSPHAERIUM PULCHELLUM	CEL						
DINOBRYON DIVERGENS	COL		0.5	22			
DINOBRYON SERTULARIA ?	CEL			X			X
EUDORINA ELEGANS	CEL						
EUGLENA	CEL			X			
FLAGELLATES	COL			X	5	1.7	17
FRAGILARIA	CEL	2	72.5	3190	1	58.8	580
FRAGILARIA CROTONENSIS	CEL			X			X
GOLENKINIA	CEL						
KIRCHNERIELLA	CEL	3	5.0	220			
MELOSIRA	CEL		0.5	22			
MICRACTINIUM PUSILLUM	CEL				2	22.7	224
MICROCYSTIS INCERTA	CEL			X			X
MOUGEOTIA #1	CEL			X			
MOUGEOTIA #2	COL		1.0	44	4	2.5	25
OOCYSTIS	COL	1	5.5	242			
PANDORINA MORUM	FIL		0.5	22			
PEDIASTRUM BORYANUM	FIL	4	3.6	157			
PEDIASTRUM DUPLEX	CEL			X			
V. CLATHRATUM	COL			X			
	COL						
	COL			X			

LAKE NAME: LAKE MUSCONETCONG CONTINUED
STORET NUMBER: 3417

TAXA	FORM	07 23 73 S	07 23 73 %C	07 23 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
PEDIASTRUM DUPLEX V. RETICULATUM	COL						X
PEDIASTRUM OBTUSUM	COL			X			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL			X			
PEDIASTRUM TETRAS V. TETRAODON	COL						X
PINNULARIA	CEL						X
SCENEDESMUS DENTICULATUS	COL			X			
SCENEDESMUS DIMORPHUS	COL			X			
SCENEDESMUS OPOLIENSIS	COL		0.5	22			
SCENEDESMUS QUADRICAUDA	COL		0.5	22			
SCENEDESMUS SPP.	COL				3	8.4	83
SCHROEDERIA SETIGERA	CEL		0.5	22			
SPHAEROCYSTIS	CEL		1.0	44			
STAURASTRUM #1	CEL		0.5	22			
STAURASTRUM #2	CEL						X
STAURASTRUM FURCIGERUM	CEL		0.5	22			
STEPHANODISCUS	CEL		1.0	44			
SYNEDRA	CEL					0.8	8
TETRAEDRON MUTICUM	CEL			X			
TETRAEDRON REGULARE	CEL					0.8	8
TREUBARIA	CEL		0.5	22			
VOLVOX	COL			X			
TOTAL				4403			987

LAKE NAME: PAULINSKILL LAKE
STORET NUMBER: 3419

NYGAARD TROPHIC STATE INDICES

DATE	04 18 73	07 22 73	10 02 73
MYXOPHYCEAN	2.00 E	1.00 E	1.00 E
CHLOROPHYCEAN	2.00 E	2.50 E	4.33 E
EUGLENOPHYTE	0.50 E	0/07 ?	0/16 ?
DIATOM	0.32 E	0.27 ?	0.80 E
COMPOUND	12.0 E	5.50 E	6.67 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 18 73	07 22 73	10 02 73
GENUS	17	10	07
SPECIES	03	04	02

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 18 73	07 22 73	10 02 73
AVERAGE DIVERSITY	H	3.34	3.06	1.35
NUMBER OF TAXA	S	34.00	31.00	32.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	5.09	4.95	5.00
TOTAL DIVERSITY	D	8784.20	7206.30	9985.95
TOTAL NUMBER OF INDIVIDUALS/ML	N	2630.00	2355.00	7397.00
EVENESS COMPONENT	J	0.66	0.62	0.27
MEAN NUMBER OF INDIVIDUALS/TAXA	L	77.35	75.97	231.16
NUMBER/ML OF MOST ABUNDANT TAXON	K	610.00	1013.00	5840.00

LAKE NAME: PAULINSKILL LAKE CONTINUED
STORET NUMBER: 3419

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
ACHNANTHES ?	CEL						X			
ACHNANTHES LANCEOLATA V. DUBIA	CEL			X						
ACHNANTHES LANCEOLATA V. DUBIA ?	CEL						X			
ANABAENA	FIL					0.9	22			
ANKISTRODESMUS	CEL		3.0	80			X			
APHANIZOMENON	COL									X
ASTERIONELLA FORMOSA	CEL		4.0	106		0.9	22			X
CERATIUM HIRUNDINELLA	CEL						X			
CLOSTERIUM #1	CEL			X		0.9	22		1.5	114
CLOSTERIUM #2	CEL					0.9	22			
CLOSTERIUM LEIBLEINII	CEL									X
COCCONEIS PEDICULUS	CEL					0.9	22			
COCCONEIS PLACENTULA V. EUGLYPTA	CEL			X		5.6	132			
COELASTRUM CAMBRICUM	COL						X			
COELASTRUM MICROPORUM	COL									X
COELOSPHAERIUM NAEGELIANUM	COL									X
CYCLOTELLA MENEGHINIANA	CEL	4	5.1	133	3	9.3	220	4	2.6	190
CYMBELLA	CEL			X			X			X
CYMBELLA #1	CEL		2.0	53		0.9	22			
DIATOMA ELONGATUM	CEL		1.0	27						
DINOBRYON DIVERGENS	CEL					0.9	22			
DINOFLAGELLATE	CEL								1.5	114
EUDORINA ELEGANS	COL									X
EUGLENA	CEL		1.0	27						
FLAGELLATES	CEL	2	21.2	557	1	43.0	1013	1	79.0	5840
FRAGILARIA	CEL		4.0	106				5	2.6	190
FRAGILARIA #1	CEL						X			
FRAGILARIA #2	CEL						X			
FRAGILARIA CROTONENSIS	CEL									X

LAKE NAME: PAULINSKILL LAKE CONTINUED
STORET NUMBER: 3419

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
HANTZSCHIA	CEL			X						
MELOSIRA #2	CEL		2.0	53		0.9	22			X
MELOSIRA #7	CEL		1.0	27				3	2.1	152
MELOSIRA VARIANS	CEL		1.0	27	5	3.7	98			
NAVICULA	CEL								0.5	38
NAVICULA #1	CEL			X						
NAVICULA #2	CEL			X						
NAVICULA #3	CEL			X						
NAVICULA SALINARIUM V. INTERMEDIA	CEL			X			X			
NAVICULA SPP.	CEL	1	23.2	610		5.6	132			
NITZSCHIA	CEL		1.0	27		6.5	154			
NITZSCHIA ACICULARIS	CEL		4.0	106			X			
COCYSTIS	CEL									X
OSCILLATORIA #1	FIL	5	4.0	106		0.9	22			
OSCILLATORIA #2	FIL								0.5	38
OSCILLATORIA AMPHIBIA	FIL			X						
PANDORINA MORUM	COL									X
PEDIASTRUM BORYANUM	COL									X
PEDIASTRUM DUPLEX	COL									X
PEDIASTRUM DUPLEX V. RETICULATUM	COL									X
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL									X
PEDIASTRUM TETRAS V. TETRAODON	COL									X
PHACUS	CEL		1.0	27						
RHOICOSPHENIA	CEL			X		2.8	66			
SCENEDESMUS #1	COL								2.1	152
SCENEDESMUS BIJUGA	COL						X			X
SCENEDESMUS DENTICULATUS	COL									X
SCENEDESMUS DIMORPHUS	COL					0.9	22			

LAKE NAME: PAULINSKILL LAKE CONTINUED
STORET NUMBER: 3419

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
SCENEDESMUS PROTUBERANS ?	COL									X
SCENEDESMUS QUADRICAUDA	COL		1.0	27					0.5	38
SCENEDESMUS QUADRICAUDA V. QUADRISPINA	COL						X			
SCHROEDERIA SETIGERA	CEL									X
STAURASTRUM	CEL									X
STEPHANODISCUS	CEL	3	18.2	478	4	7.5	176	2	7.2	531
STEPHANODISCUS DUBIUS	CEL			X						
SURIRELLA	CEL			X						
SYNEDRA ? #1	CEL		2.0	53						
SYNEDRA #2	CEL			X						
SYNEDRA DELICATISSIMA	CEL				2	6.5	154			
SYNEDRA RUMPENS	CEL			X						
TOTAL				2630			2355			7397

LAKE NAME: SPRUCE RUN RES.
STORET NUMBER: 3420

NYGAARD TROPHIC STATE INDICES

DATE	04 18 73	07 22 73	10 02 73
MYXOPHYCEAN	01/0 E	1.25 E	2.50 E
CHLOROPHYCEAN	03/0 E	2.50 E	5.50 E
EUGLENOPHYTE	0.25 E	0.20 ?	0.31 E
DIATOM	0.60 E	0.86 E	0.52 E
COMPOUND	08/0 E	6.00 E	13.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 18 73	07 22 73	10 02 73
GENUS	09	05	09
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 18 73	07 22 73	10 02 73
AVERAGE DIVERSITY	H	2.02	2.05	2.74
NUMBER OF TAXA	S	15.00	39.00	40.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	3.91	5.29	5.32
TOTAL DIVERSITY	D	49079.94	18144.55	8420.02
TOTAL NUMBER OF INDIVIDUALS/ML	N	24297.00	9851.00	3073.00
EVENESS COMPONENT	J	0.52	0.39	0.52
MEAN NUMBER OF INDIVIDUALS/TAXA	L	1619.80	226.95	76.83
NUMBER/ML OF MOST ABUNDANT TAXON	K	13519.00	5711.00	951.00

LAKE NAME: SPRUCE RUN RES.
STORET NUMBER: 3420

CONTINUED

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
ANABAENA	FIL						X	5	1.9	59
ANKISTRODESMUS	CEL					0.3	26		0.7	20
APHANIZOMENON	FIL								0.7	20
ASTERIONELLA FORMOSA	CEL	2	20.4	4953		0.3	26			
ATTHEYA	CEL						X			X
CERATIUM HIRUNDINELLA	CEL									X
CHROOCOCCUS	COL						X			
CLOSTERIUM	CEL					1.5	131			
COELASTRUM CAMBRICUM	COL									X
COELASTRUM RETICULATUM	COL						X			
COELOSPHAERIUM NAEGELIANUM	COL				1	5.3	471			X
COSMARIUM #1	CEL					0.3	26			
COSMARIUM #2	CEL									X
CYCLOTELLA STELLIGERA	CEL				2	64.5	5711	1	30.9	951
DINOBRYON BAVARICUM	CEL		0.3	62			X			
DINOBRYON DIVERGENS	CEL					1.8	157			X
DIPLONEIS PUELLA ?	CEL						X			X
EUGLENA	CEL						X			
EUGLENA #1	CEL									X
EUGLENA #2	CEL									X
FLAGELLATES	CEL	4	7.3	1775	3	13.3	1179	3	27.7	852
FRAGILARIA	CEL					0.6	52			
FRAGILARIA #1	CEL		1.5	374						
FRAGILARIA CROTONENSIS	CEL		0.8	187			X			X
FRANCEIA	CEL					1.5	131		0.7	20
LAGERHEIMIA	CEL					0.3	26			
MELOSIRA #2	CEL	3	7.7	1869		1.2	105	2	13.5	416
MELOSIRA DISTANS	CEL						X			
MELOSIRA GRANULATA	CEL									X
MICRACTINIUM ?	COL		0.3	62						
MICROCYSTIS INCERTA	COL									X
MICROCYSTIS PULVEREA ? V. INCERTA	COL									X

LAKE NAME: SPRUCE RUN RES.
STORET NUMBER: 3420

CONTINUED

TAXA	FORM	04 18 73 S	04 18 73 %C	04 18 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 02 73 S	10 02 73 %C	10 02 73 ALGAL UNITS PER ML
NAVICULA	CEL								3.2	99
NAVICULA #1	CEL									X
NAVICULA #2	CEL									X
NITZSCHIA	CEL						X		0.7	20
OSCILLATORIA #1	FIL					0.3	26			
OSCILLATORIA #2	FIL						X			
OSCILLATORIA LIMNETICA	FIL	5	4.1	997						
PANDORINA MORUM	COL									X
PEDIASTRUM DUPLEX V. RETICULATUM	COL								0.7	20
PEDIASTRUM SIMPLEX	COL			X			X			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL								0.7	20
PENNATE DIATOM	CEL					0.3	26			
PERIDINIUM ELAPTIEWSKY	CEL						X			
PHACUS	CEL			X		0.3	26			
PHACUS ACUMINATUS	CEL									X
PHACUS TORTUS	CEL					0.3	26			X
RHIZOSOLENIA LONGISETA	CEL				4	3.0	262			
SCENEDESMUS #1	COL						X		3.2	99
SCENEDESMUS #2	COL					0.3	26			
SCENEDESMUS DENTICULATUS	COL						X		1.3	40
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL								0.7	20
SCENEDESMUS PROTUBERANS ?	COL						X			
STAURASTRUM #1	CEL					0.3	26			
STAURASTRUM #2	CEL						X			
STAURASTRUM TETRACERUM	CEL									X
STEPHANODISCUS #1	CEL		1.4	343						
STEPHANODISCUS ASTRAEA	CEL		0.1	31						X
STEPHANODISCUS ASTRAEA ?	CEL					0.3	26			
SYNEDRA	CEL	1	55.6	13519						

LAKE NAME: SPRUCE RUN RES.
STORET NUMBER: 3420

CONTINUED

TAXA	FORM	04 18 73 S	%C	ALGAL UNITS PER ML	07 22 73 S	%C	ALGAL UNITS PER ML	10 02 73 S	%C	ALGAL UNITS PER ML
SYNECRA #1	CEL			X		0.3	26			X
SYNECRA #2	CEL								0.7	20
TETRAEDRON ? MINIMUM	CEL		0.5	125						
TETRAEDRON HASTATUM	CEL									X
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL				5	3.8	340	4	12.3	377
TRACHELOMONAS	CEL									X
TREUBARIA	CEL								0.7	20
TOTAL				24297			8851			3073

LAKE NAME: UNION LAKE
STORET NUMBER: 3422

NYGAARD TROPHIC STATE INDICES

DATE	04 16 73	07 20 73	09 28 73
MYXOPHYCEAN	1.00 E	4.00 E	10.0 E
CHLOROPHYCEAN	1.00 E	14.0 E	15.0 E
EUGLENOPHYTE	0/02 ?	0/18 ?	0.08 ?
DIATOM	0.50 E	0.67 E	0.75 E
COMPOUND	5.00 E	22.0 E	30.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 16 73	07 20 73	09 28 73
GENUS	01	06	17
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 16 73	07 20 73	09 28 73
AVERAGE DIVERSITY	H	1.89	1.81	3.39
NUMBER OF TAXA	S	13.00	31.00	38.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	1.00
MAXIMUM DIVERSITY	MAXH	3.70	4.95	5.25
TOTAL DIVERSITY	D	1695.33	12995.80	31601.58
TOTAL NUMBER OF INDIVIDUALS/ML	N	897.00	7180.00	9322.00
EVENESS COMPONENT	J	0.51	0.37	0.65
MEAN NUMBER OF INDIVIDUALS/TAXA	L	69.00	231.61	245.32
NUMBER/ML OF MOST ABUNDANT TAXON	K	576.00	4868.00	2077.00

LAKE NAME: UNION LAKE
STORET NUMBER: 3422

CONTINUED

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	07 20 73 S	07 20 73 %C	07 20 73 ALGAL UNITS PER ML	09 28 73 S	09 28 73 %C	09 28 73 ALGAL UNITS PER ML
ACHNANTHES PERAGALLI	CEL						X			
ACTINASTRUM GRACILIMUM	COL						X			
ANABAENA	FIL						X		0.5	44
ANKISTRODESMUS	CEL						X		0.5	44
APHANIZOMENON	COL							5	8.5	795
APHANOTHECE SAXICOLA ?	COL							1	22.3	2077
ASTERIONELLA	CEL					0.4	30			
ASTERIONELLA FORMOSA	CEL	5	2.8	25						
CENTRIC DIATOM	CEL		3.7	33						
CHLOROPHYTAN FILAMENT	FIL									X
CHROOCCCCUS	COL								1.9	177
CHROOCOCCUS #2	COL									X
CLOSTERIUM	CEL					0.4	30			
COELASTRUM CAMBRICUM V. INTERMEDIUM	COL									X
CYCLOTELLA	CEL								1.9	177
CYCLOTELLA MENEGHINIANA	CEL			X			X			
CYCLOTELLA STELLIGERA	CEL					0.4	30			
DICTYOSPHAERIUM PULCHELLUM	COL								0.5	44
DINOBRYON BAVARICUM	CEL									X
EUGLENA	CEL								0.9	88
EUNOTIA PECTINALIS	CEL			X						
FLAGELLATES	CEL	1	64.2	576		0.4	30	4	16.6	1547
FRAGILARIA	CEL	3	11.9	107	2	13.0	931			
FRAGILARIA #1	CEL							3	15.6	1458
FRAGILARIA CROTONENSIS	CEL									X
MELOSIRA	CEL						X			
MELOSIRA #2	CEL	2	8.2	74	1	67.8	4868	2	12.3	1149
MERISMOPEDIA	COL					0.8	60			
MERISMOPEDIA TENUISSIMA	COL								0.9	88
MICRACTINIUM PUSILLUM	COL									X
MICRACTINIUM PUSILLUM V. LONGISETUM	COL					0.4	30			

LAKE NAME: UNION LAKE
STORET NUMBER: 3422

CONTINUED

TAXA	FORM	04 16 73 S	%C	ALGAL UNITS PER ML	07 20 73 S	%C	ALGAL UNITS PER ML	09 28 73 S	%C	ALGAL UNITS PER ML
MICROCYSTIS AERUGINOSA	COL						X		0.9	88
MICROCYSTIS INCERTA	COL								2.8	265
MICROCYSTIS PULVEREA V. INCERTA	COL				3	5.9	421			X
NAVICULA	CEL									X
NEIDIUM ?	CEL									X
NITZSCHIA	CEL						X			
OSCILLATORIA LIMNETICA	FIL								6.2	575
PEDIASTRUM DUPLEX V. ?	COL					0.4	30			
PEDIASTRUM DUPLEX V. GRACILIMUM	COL								0.5	44
PEDIASTRUM TETRAS V. TETRAODON	COL						X			
PENNATE DIATOM	CEL		3.7	33						
POLYEDRIOPSIS SPINULOSA	CEL								0.5	44
RAPHIDIOPSIS ?	FIL			X						
SCENEDESMUS	COL		0.9	8	5	1.7	120			
SCENEDESMUS #1	COL					0.4	30			
SCENEDESMUS #2	COL								0.5	44
SCENEDESMUS #3	COL								0.5	44
SCENEDESMUS #4	COL								0.5	44
SCENEDESMUS ABUNDANS	COL					0.4	30			X
SCENEDESMUS BIJUGA V. ALTERNANS	COL									X
SCENEDESMUS DENTICULATUS V. LINEARIS	COL					0.4	30			X
SCENEDESMUS DIMORPHUS	COL						X			
SCENEDESMUS DIMORPHUS ? F. TORTUS	COL						X			
SCENEDESMUS OPOLIENSIS	COL						X		1.4	133
SCENEDESMUS PROTUBERANS	COL						X			

LAKE NAME: UNION LAKE
STORET NUMBER: 3422

CONTINUED

TAXA	FORM	04 16 73 S	04 16 73 %C	04 16 73 ALGAL UNITS PER ML	07 20 73 S	07 20 73 %C	07 20 73 ALGAL UNITS PER ML	09 28 73 S	09 28 73 %C	09 28 73 ALGAL UNITS PER ML
SCHROEDERIA SETIGERA	CEL								0.5	44
STAURASTRUM	CEL									X
STAURASTRUM PUNCTULATUM	CEL		0.9	8						
STEPHANODISCUS	CEL								3.3	309
STIPITOCOCCUS VASIFORMIS	CEL					2.5	180			
SYNEDRA	CEL					0.4	30			
SYNEDRA #1	CEL		0.9	8						
TABELLARIA FENESTRATA ?	CEL				4	4.2	300			
TABELLARIA FLOCCULOSA	CEL	4	2.8	25						
TETRAEDRON	CEL						X			
TETRAEDRON TRIGONUM V. GRACILE	CEL									X
TRACHELOMONAS	CEL									X
TOTAL				897			7180			9322

LAKE NAME: WANAQUE RES.
STORET NUMBER: 3423

NYGAARD TROPHIC STATE INDICES

DATE	04 07 73	07 22 73	10 01 73
MYXOPHYCEAN	0.50 E	5.00 E	1.67 E
CHLOROPHYCEAN	1.50 E	10.0 E	2.00 E
EUGLENOPHYTE	0.25 E	0/15 ?	0/11 ?
DIATOM	0.56 E	1.00 E	1.40 E
COMPOUND	5.00 E	18.0 E	6.00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 07 73	07 22 73	10 01 73
GENUS	08	01	01
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 07 73	07 22 73	10 01 73
AVERAGE DIVERSITY	H	3.41	2.48	2.80
NUMBER OF TAXA	S	27.00	30.00	34.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.75	4.91	5.09
TOTAL DIVERSITY	D	22611.71	5160.88	6577.20
TOTAL NUMBER OF INDIVIDUALS/ML	N	6631.00	2081.00	2349.00
EVENESS COMPONENT	J	0.72	0.51	0.55
MEAN NUMBER OF INDIVIDUALS/TAXA	L	245.59	69.37	69.09
NUMBER/ML OF MOST ABUNDANT TAXON	K	1178.00	701.00	980.00

LAKE NAME: WANAQUE RES.
STORET NUMBER: 3423

CONTINUED

TAXA	FORM	04 07 73 S	04 07 73 %C	04 07 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
ANABAENA #1	FIL					1.0	20			
ANABAENA #2	FIL									X
APHANIZOMENON ?	COL								0.9	22
APHANOCAPSA	COL						X		0.5	11
ASTERIONELLA FORMOSA	CEL	5	16.6	1103	5	6.3	132		4.3	100
ATTHEYA	CEL									X
CENTRIC DIATOM	CEL		0.8	50		0.5	10			
CERATIUM HIRUNDINELLA	CEL					0.5	10			X
CHLOROPHYTAN FILAMENT	FIL		0.6	38						
CHROOCOCCUS	COL									X
CLOSTERIUM	CEL									X
COCCONEIS	CEL									X
COELASTRUM RETICULATUM	CCL						X			
COELOSPHAERIUM NAEGELIANUM	COL									X
CRUCIGENIA TETRAPEDIA	COL						X		0.9	22
CYMBELLA	CEL			X						
DICTYOSPHAERIUM PULCHELLUM	COL						X			X
DINOBRYON BAVARICUM	CEL		0.6	38						X
DINOBRYON DIVERGENS	CEL		1.3	88		2.0	41			X
DINOFLAGELLATE	CEL					0.5	10			X
DINOFLAGELLATE #1	CEL			X						
EPIPHYTE ON FRAGILARIA	CEL					0.5	10			
EUDORINA ELEGANS	COL						X			X
FILAMENT	FIL					0.5	10		0.9	22
FLAGELLATES	CEL		8.5	564	2	33.7	701	1	41.7	980
FRAGILARIA CROTONENSIS	CEL	4	9.8	652	3	15.6	325	5	9.5	223
GOLENKINIA	CEL						X			
LUNATE CELL	CEL			X						
MALLOMONAS PSEUDOCORONATA	CEL									X
MELOSIRA #2	CEL						X	4	4.7	111
MELOSIRA #8	CEL								1.9	45
MELOSIRA DISTANS	CEL			X	1	31.7	660	2	15.2	357

LAKE NAME: WANAQUE RES.
STORET NUMBER: 3423

CONTINUED

TAXA	FORM	04 07 73 S	04 07 73 %C	04 07 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
MELOSIRA ITALICA	CEL	3	17.2	1141						
MICRACTINIUM PUSILLUM	COL		0.6	38						
MICROCYSTIS AERUGINOSA	COL						X			
NITZSCHIA	CEL						X			
NITZSCHIA #1	CEL		0.2	12						
OSCILLATORIA LIMNETICA	CEL			X						X
PEDIASTRUM DUPLEX V. RETICULATUM	FIL		4.0	263		0.5	10			
PENNATE DIATOMS	COL						X			
PERIDINIUM WISCONSINENSE	CEL		4.2	276						
PHACUS TORTUS	CEL				4	4.9	102			
PHORMIDIUM MUCICOLA	CEL		0.2	12						
RHIZOSOLENIA	COL						X			
SCENEDESMUS #1	CEL		4.3	288						
SCENEDESMUS #2	COL								0.9	22
SCENEDESMUS #4	COL					0.5	10			
SCENEDESMUS BIJUGA ?	COL					0.5	10		0.9	22
SPONDYLOSIUM PLANUM	COL						X			
STAURASTRUM	CEL			X						
STAURASTRUM CUSPIDATUM V. ?	CEL		1.9	125						
STAURASTRUM OPHIURA	CEL			X						X
STEPHANODISCUS	CEL						X			
STEPHANODISCUS DUBIUS	CEL									X
SYNEDRA	CEL	1	6.6	439				3	12.8	301
SYNEDRA #1	CEL					1.0	20			X
TABELLARIA FENESTRATA	CEL		4.5	301						
TABELLARIA FLOCCULOSA	CEL	2	17.8	1178					1.9	45
TETRAEDRON ?	CEL		0.4	25						
TETRAEDRON #1	CEL			X						
TETRAEDRON MINIMUM	CEL								1.4	33
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL						X			
	CEL								0.9	22

*U. S. GOVERNMENT PRINTING OFFICE: 1978—785-507

LAKE NAME: WANAQUE RES. CONTINUED
STORET NUMBER: 3423

TAXA	FORM	04 07 73 S	04 07 73 %C	04 07 73 ALGAL UNITS PER ML	07 22 73 S	07 22 73 %C	07 22 73 ALGAL UNITS PER ML	10 01 73 S	10 01 73 %C	10 01 73 ALGAL UNITS PER ML
TETRAEDRON MUTICUM	CEL								0.5	11
TOTAL				6631			2081			2349